REMARKS

Claims 1-6, 8, 10-15, 17, and 18 are pending in this application. In an Office Action dated August 25, 2006 (OA), the Examiner rejected claims 1-6, 8, 10-13, 17 and 18, and allowed claims 14 and 15. In this response, Applicants respectfully traverse the rejection and request reconsideration of the rejected claims based on the following remarks.

In addition, Applicants do not necessarily agree with or acquiesce to the Examiner's characterization of the claims or the prior art, even if those characterizations are not addressed herein.

Claim Rejections under 35 U.S.C. § 103

To establish a prima facie case of obviousness, MPEP § 2142 requires that (1) the prior art reference must teach or suggest all claimed elements, (2) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference, and (3) there must be a reasonable expectation of success.

Claims 1-3

The Examiner rejected claim 1-3 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,631,991 ("Cohen") in view of U.S. Patent No. 5,031,984 ("Eide") and 6,851,870 ("Deng"). Applicants respectfully traverse the rejection and request the Examiner to withdraw the rejection based on the arguments provided below.

Claim 1 recites "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber" (emphasis added). The Examiner stated that "[a]lthough the image sensor (31) of

Deng is not offset from the optical fiber (20), as indicated by the applicants, Deng does teach an optical detector (element 30 (B6), Figures 1-6, and column 7, lines 22-24) offset from the optical axis of an optical fiber (element 20 (B4) inserted in aperture 11, Figures 1-6, and column 4, lines 43-67)."

But the Examiner's use of functional element 30 to be an optical detector is inconsistent within claim 1. If functional element 30 is considered to be the optical detector that is offset from optical fiber 20, the functional element 30 would not be aligned to receive a signal from the optical fiber 20, as required by claim 1. Deng discloses that the image sensor 31 or functional element 30 must be aligned with the optical axis of the fiber to receive the signal from optical fiber 20 by stating:

> The present invention relates to a method for measuring and assembling transceiver optical sub-assembly (OSA), in which an image sensor **is aligned** with a fiber aperture on a housing of the optical sub-assembly and set to focus on a fiber coupling plane in the housing, so as to detect a light spot presented on the fiber coupling plane by a laser beam emitted from a functional element through the lens, or an image of a light-emitting area or a receiving area of the functional element presented on the fiber coupling plane via the lens. By adjusting the size and position of the light spot or the image on the fiber coupling plane, the functional element is precisely aligned and then fixed in the housing. With the method, measuring procedures for the OSA are simplified and the transmission bandwidth for the optical fiber is optimized, enabling an increased rate of good yield of the finished OSA. (emphasis added)

Deng at col. 1 ll. 7-23.

More specifically, Deng discloses that the image sensor 31 or functional element 30 must be aligned with the fiber aperture A3 that holds an optical fiber 20 in place so the image sensor 31 or functional element 30 can detect a light spot presented on the fiber coupling plane by a laser beam emitted from an optical fiber. Thus, if Deng's image sensor 31 or functional element 30 is offset from optical fiber 20, then Deng's optical fiber could not focus an optical beam onto the active area of image sensor 31 or functional element 30, as required by claim 1 of the present

application. Further, Applicants respectfully submit that Deng's functional element 30 is used to assist in aligning the image sensor 31 with the optical fiber 20. If Deng's functional element 30 is aligned properly so that a light beam provided by functional element 30 goes through the lens to the fiber coupling plane 21, the image sensor 31 could only be properly aligned with optical fiber 20 to receive the communication.

Therefore, Deng does not disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber," (emphasis added). Further, as acknowledged by the Examiner, Cohen fails to overcome the deficiency of Deng. Furthermore, Eide does not overcome the deficiency of Deng. Therefore, Applicants respectfully submit that claim 1 is allowable over the cited prior art.

Claims 2 and 3 depend on claim 1 and are allowable for the same reasons as claim 1.

Further, regarding claim 3, the Examiner alleged that Cohen's ferrule 6 is a sleeve and then stated that "Cohen does not teach that the multimode optical fiber stub is optically coupled with a single mode optical fiber...Eide teaches a single-mode optical fiber (14) optically coupled with a multimode optical fiber stub (16)." OA at page 4. This appears to contradict the Examiner's statements regarding claim 17, which includes similar elements to claim 3, in the Response to Arguments section on page 2 of the OA and the Examiner's issuance of a new grounds of rejection for claim 17 on pages 10-11 of the OA.

Applicants respectfully submit that Cohen's ferrule appears to be part of the fiber stub, appears limited to only a single fiber, and that Cohen is silent with respect to using ferrule 6 to explicitly couple a single-mode optical fiber and the multi-mode fiber stub. Further, Eide

discloses connecting a single-mode optical fiber with a multi-mode fiber stub **only** and does not describe using a sleeve to couple the two optical fibers. Thus, Applicants respectfully submit that the combination of Cohen and Eide fail to disclose "a split sleeve positioned over a portion of the multi-mode optical fiber stub, the split sleeve being capable of positioning a single-mode optical fiber to optically couple with the multi-mode optical fiber stub."

Claims 4-6

The Examiner rejected claims 4-6 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of Eide and Deng further in view of U.S. Publication No. 2004/0159776 ("Richard"). Applicants respectfully traverse the rejection and request the Examiner to withdraw the rejection based on the following comments.

Claims 4-6 depend on claim 1. As stated above, Cohen in view of Eide and Deng fail to disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." Richard fails to overcome the deficiency of Cohen, Eide, and Deng regarding claim 1. Thus, Applicants submit that claims 4-6 are allowable for at least the same reasons as claim 1.

Claim 8

The Examiner rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Cohen in view of Eide and Deng further in view of U.S. Patent No. 5,737,467 ("Kato"). Applicants respectfully traverse the rejection and request the Examiner to withdraw the rejection based on the following comments.

Claim 8 depends on claim 1. As stated above, Cohen in view of Eide and Deng fail to disclose "a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector...wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." Kato fails to overcome the deficiency of Cohen, Eide, and Deng regarding claim 1. Thus, Applicants submit that claim 8 is allowable for at least the same reasons as claim 1.

Claims 10-13

The Examiner rejected claims 10-13 under 35 U.S.C. § 103(a) as being unpatentable over Eide in view of U.S. Publication No. 2005/0002614 ("Zhong"). Applicants assume that the reference to Cohen on page 8, second full paragraph, is a typographical error. If this assumption is incorrect, Applicants respectfully request the Examiner to clarify this rejection. Applicants respectfully traverse the rejection and request the Examiner to withdraw this rejection.

Claim 10 recites "coupling a light beam from a single-mode optical fiber into a multi-mode fiber stub via a sleeve, wherein the sleeve aligns the single-mode optical fiber and the multi-mode fiber stub," (emphasis added).

Eide discloses connecting a single-mode optical fiber with a multi-mode fiber stub using a mold that has precision grooves that hold the fibers and adhesive 20 that sandwich the optical fibers in place. Eide at 4:11-22. Eide explicitly acknowledges the advantages of this adhesive by stating "[t]he ultraviolet-curable adhesive also has index matching characteristics [that] are advantageous when coupling optical fibers." Eide at 3:58-63. Further, the mold and adhesive allows for Eide to connect a link fiber 12 to two branch fibers 14 and 16. Eide at Fig 6 and 3:56-58. The Examiner acknowledged that Eide does not teach a sleeve wherein the sleeve aligns the

single-mode optical fiber and the multi-mode fiber stub. OA at page 9. The Examiner then alleges that Zhong provides a sleeve that couples light from a single-mode fiber to a multi-mode fiber. OA at page 8. The Examiner further asserted:

> It would have been obvious to one of ordinary skill in the art at the time the invention of the invention to position the sleeve of [Eide] so as to optically couple the multimode fiber stub with a single-mode optical fiber, as taught by Zhong. The motivation would have been to more effectively and easily couple light from a light source through the small core single-mode fiber to a detector via the large core multimode fiber (emphasis added).

OA at page 8.

The Examiner must consider why one of ordinary skill in the art would combine Zhong's sleeve into a Eide's mold and adhesive "so as to optically couple the multimode fiber stub with a single-mode optical fiber" when Eide's grooves of the mold and adhesive already provide this coupling feature. Further, Eide acknowledges the advantage of using this adhesive, which raises a serious question why one of ordinary skill in the art would connect the fibers using any other connecting means. In addition, Zhong does not provide a sleeve accommodating the link fiber to two branch fibers because Zhong appears to only disclose a sleeve connecting a single fiber to a single fiber—not to both branch fibers needed to satisfy Eide. For at least these reasons, Applicants respectfully submit that one of ordinary skill in the art would not be motivated to combine Eide in view of Zhong. Therefore, Applicants respectfully submit that claim 10 is allowable over the cited prior art.

Claim 11 depends on claim 10 and is allowable for at least the same reasons as claim 10.

Claim 12 recites "...a sleeve for coupling an optical fiber and a multi-mode fiber stub; wherein the sleeve aligns the optical fiber and the multi-mode fiber stub...," which is similar in scope to claim 10. Due to these similarities, Applicants respectfully submit that claim 12 is allowable over the cited prior art.

Claim 13 depends on claim 12 and is allowable for at least the same reasons as claim 12.

Claim 17

The Examiner rejected claims 17 under 35 U.S.C. § 103(a) as being unpatentable over Cohen in view of Deng and Zhong. Applicants respectfully traverse the rejection and request reconsideration based on the following remarks.

Claim 17 recites "wherein the multi-mode optical fiber stub is mounted in a stub holder, the stub holder being positioned in a receptacle." The Examiner alleged that Cohen provides housing 2, which acts as a stub holder, but that Cohen fails to disclose a receptacle. The Examiner then asserted that Deng overcomes Cohen's deficiency because Deng's aperture A3 acts as a receptacle. To combine these references, the Examiner stated "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to position the stub holder of Cohen in a receptacle as taught by Deng." OA at page 10.

But the Applicants respectfully submit that Cohen's housing 2 is the same type of device as Deng's housing A2. Each of these housings provide an aperture (Deng's A3 and Cohen's ferrule bore) that receives a ferrule. The Examiner must consider why one of ordinary skill in the art would place Cohen's housing 2 into Deng's aperture A3 when Deng's housing A2 and Cohen's housing 2 are the same type of device. For at least this reason, Applicants respectfully request the Examiner to withdraw the rejection because one of ordinary skill in the art would not fit Cohen's housing 2 into Deng's aperture A3.

Claim 18

The Examiner rejected claims 18 under 35 U.S.C. § 103(a) as being unpatentable over Cohen in view of Deng. Applicants traverse the rejection and request reconsideration based on the following remarks.

Claim 18 recites "...a lens system oriented with respect to the multi-mode optical fiber stub to focus an optical beam exiting the multi-mode optical fiber stub onto an active area of an optical detector, wherein the optical detector is offset from the optical axis of the multi-mode optical fiber." As shown above in the remarks presented for claim 1, the cited prior art fails to disclose the features of claim 18. Therefore, Applicants respectfully submit that claim 18 is allowable over the cited prior art.

Allowed Claims

Applicants thank the Examiner for indicating that claims 14 and 15 are allowable over the prior art.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

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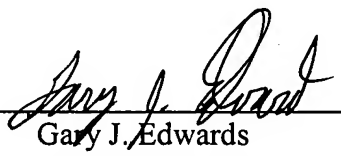
By: 
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